Name:

at1113exam: Expand, factor, and solve quadratics (v324)

1. Expand the following expression into standard form.

$$(5x + 9)(5x - 9)$$

$25x^2 - 45x + 45x - 81$

$25x^2 - 81$

2. Expand the following expression into standard form.

$$(3x + 8)(2x + 7)$$

$6x^2 + 21x + 16x + 56$

$6x^2 + 37x + 56$

3. Solve the equation.

$$(9x + 7)(6x + 5) = 0$$

$x = \frac{-7}{9}$ $x = \frac{-5}{6}$

4. Expand the following expression into standard form.

$$(7x + 5)^2$$

$49x^2 + 35x + 35x + 25$

$49x^2 + 70x + 25$

5. Factor the expression.

$$25x^2 - 9$$

$(5x + 3)(5x - 3)$

6. Solve the equation with factoring by grouping.

$$15x^2 + 18x + 10x + 12 \;=\; 0$$

$(3x + 2)(5x + 6) = 0$

$x = \dfrac{-2}{3} \qquad x = \dfrac{-6}{5}$

7. Solve the equation.

$$7x^2 + 14x - 37 \;=\; 4x^2 - 5x + 3$$

$3x^2 + 19x - 40 = 0$

$(3x - 5)(x + 8) = 0$

$x = \dfrac{5}{3} \qquad x = -8$

8. Factor the expression.

$$x^2 - 10x + 21$$

$(x - 3)(x - 7)$